

FIGURE 1

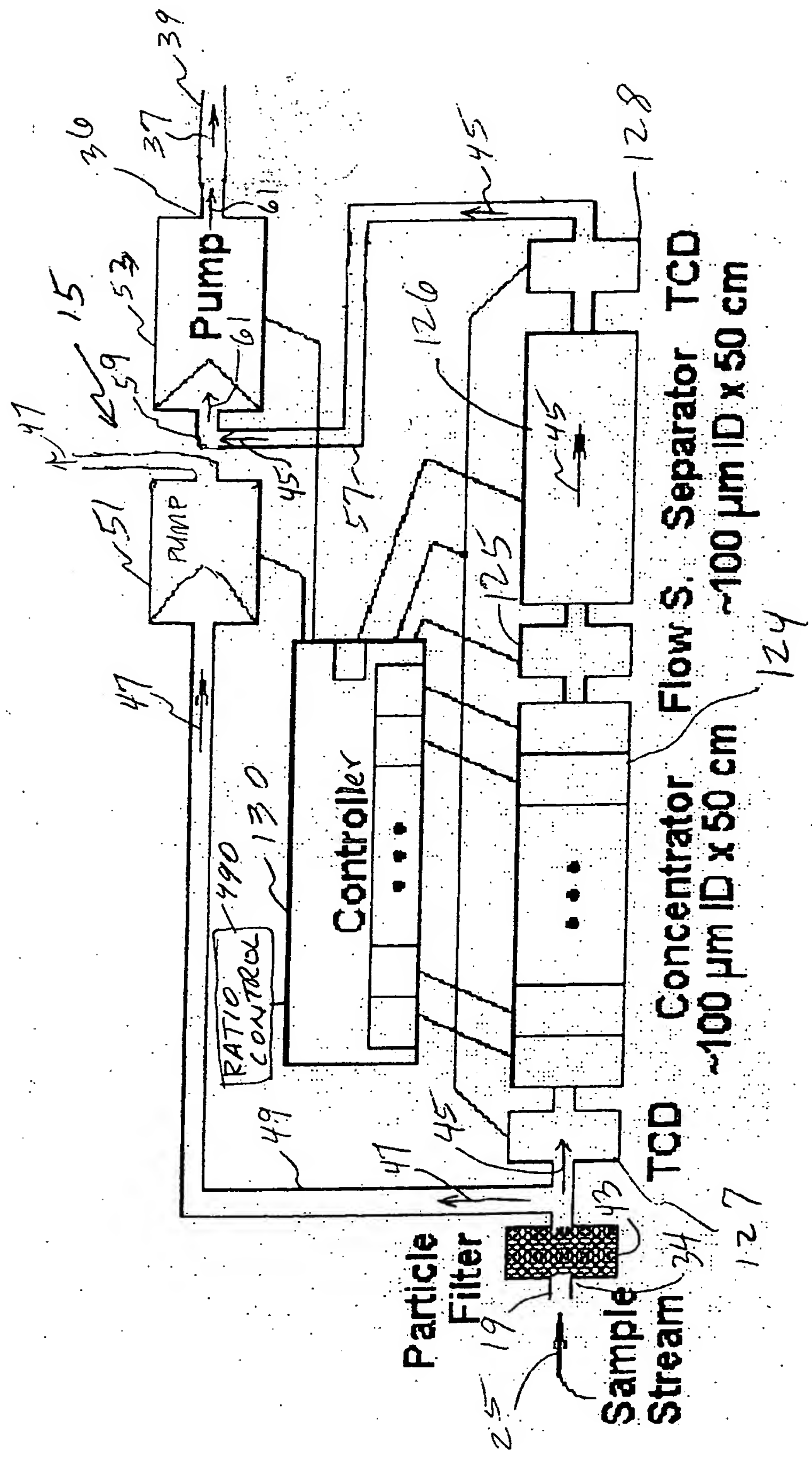


FIGURE 2

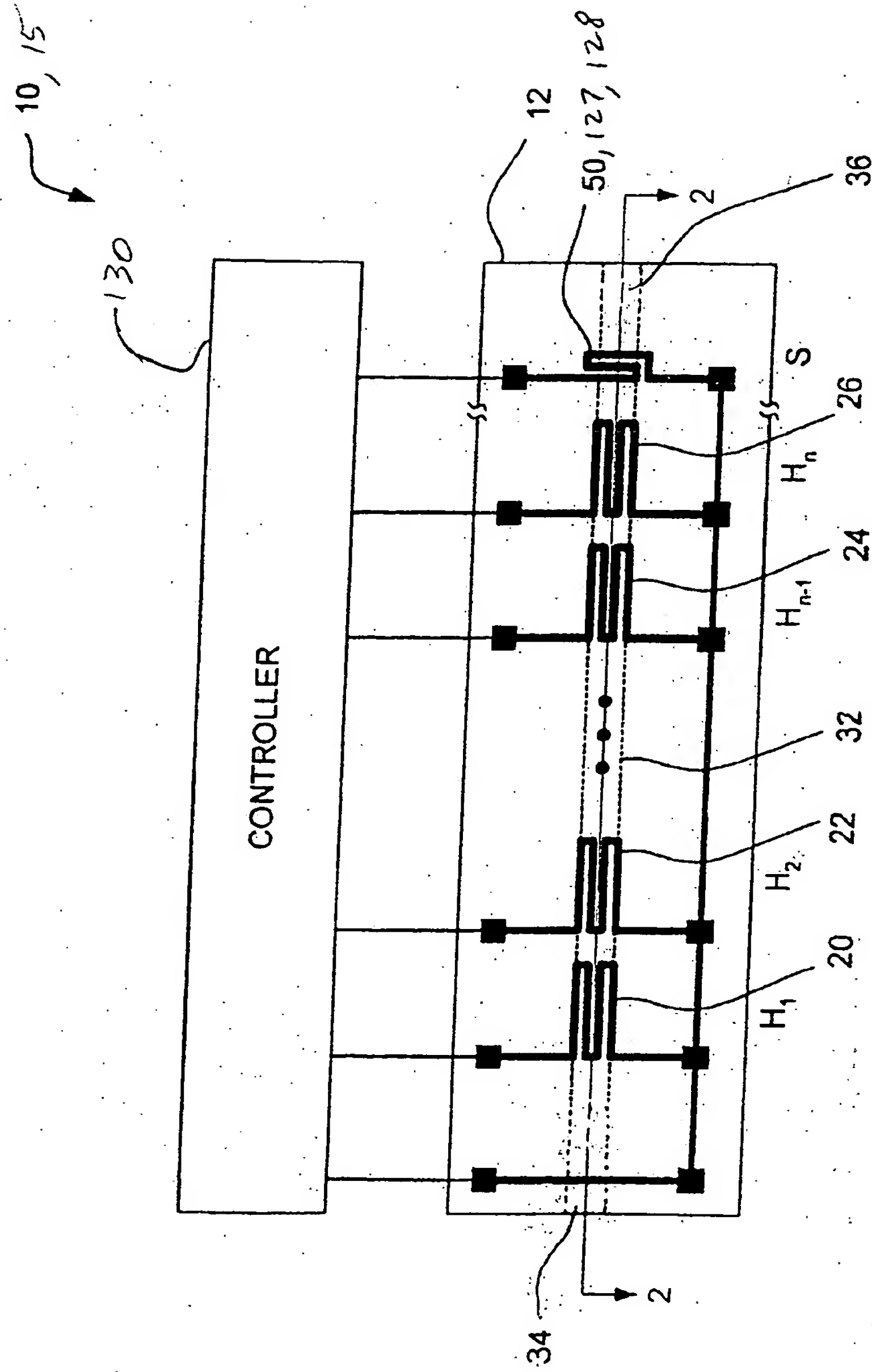


FIGURE 3

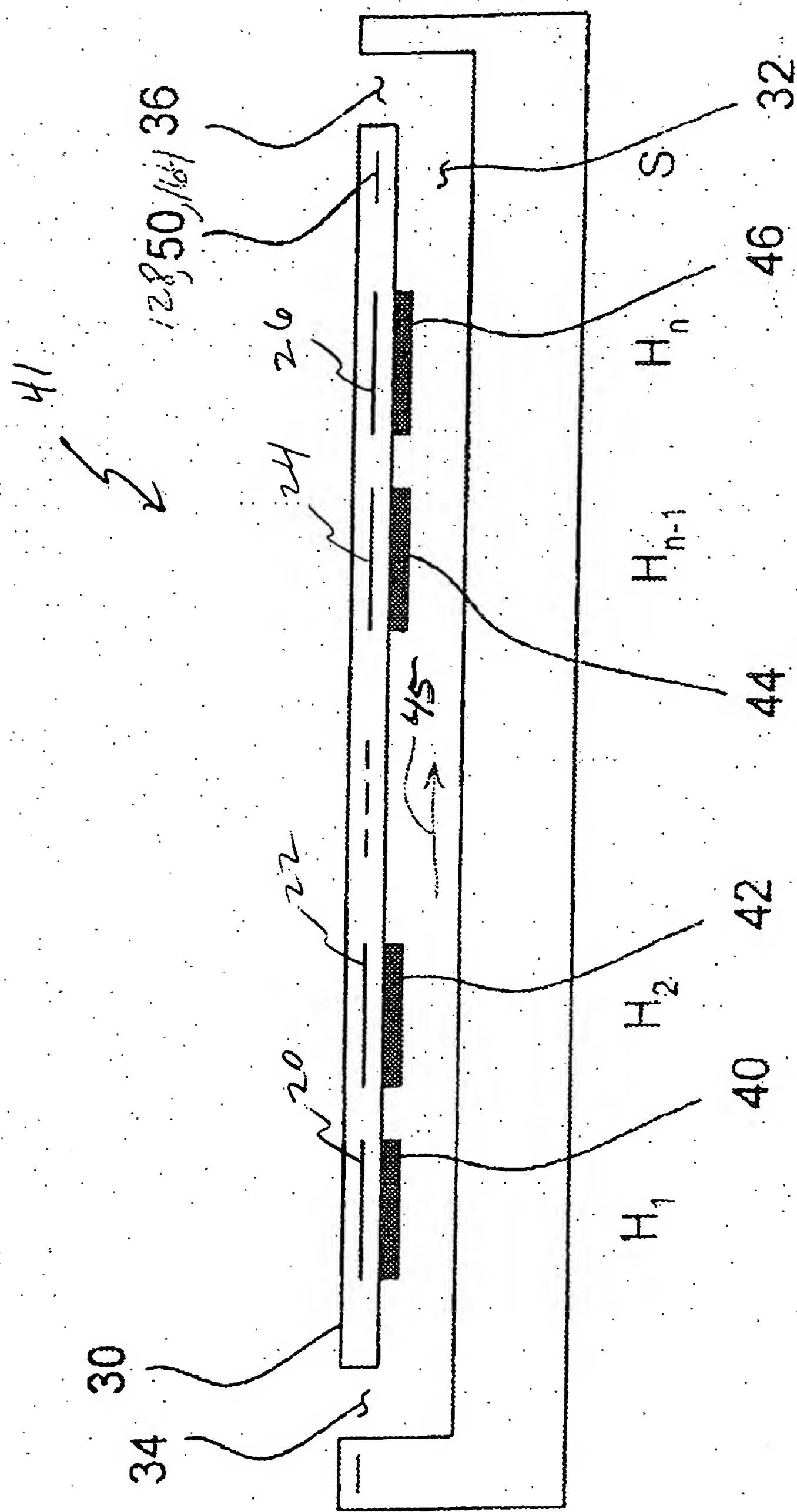


FIGURE 4

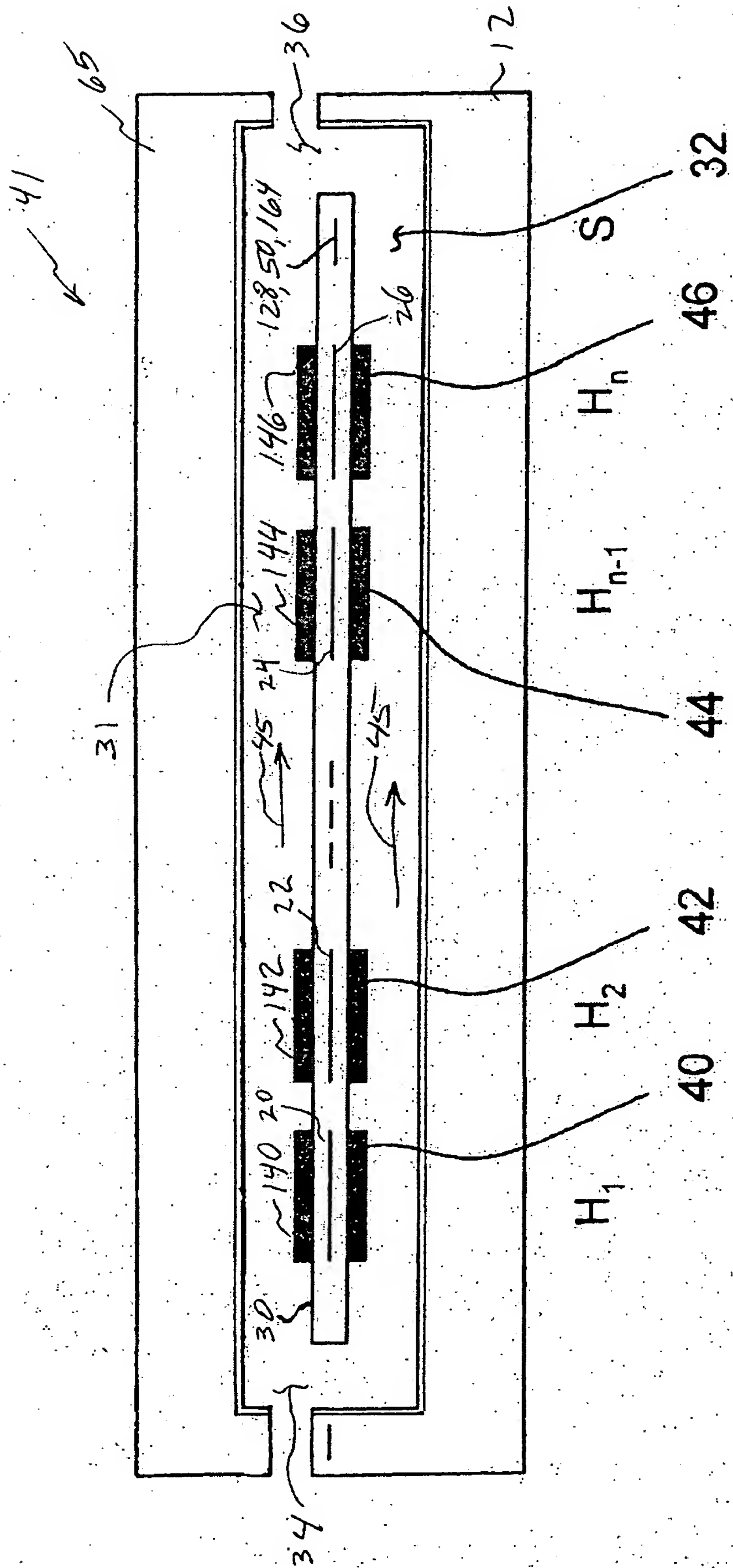


FIGURE 5

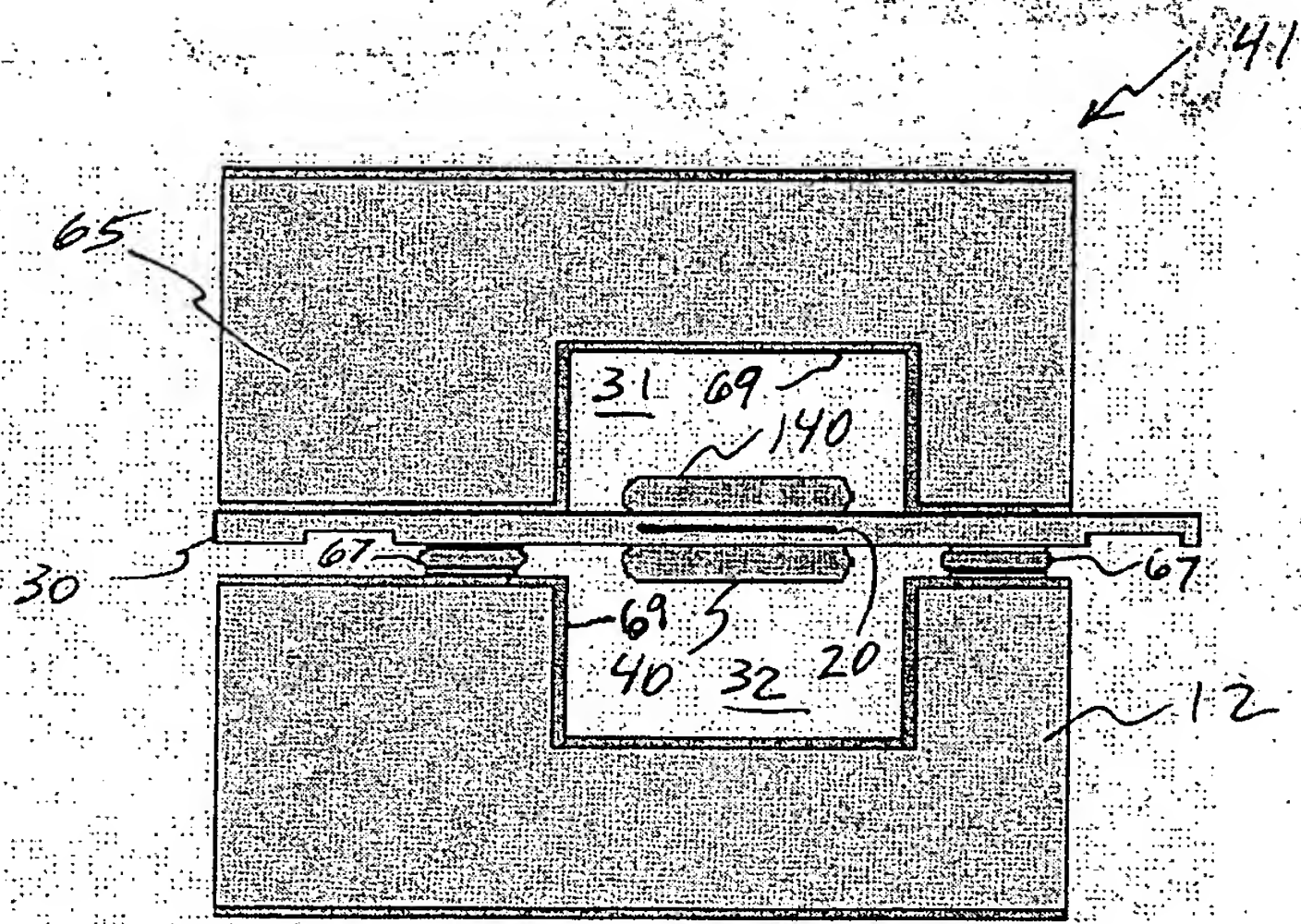


FIGURE 6a

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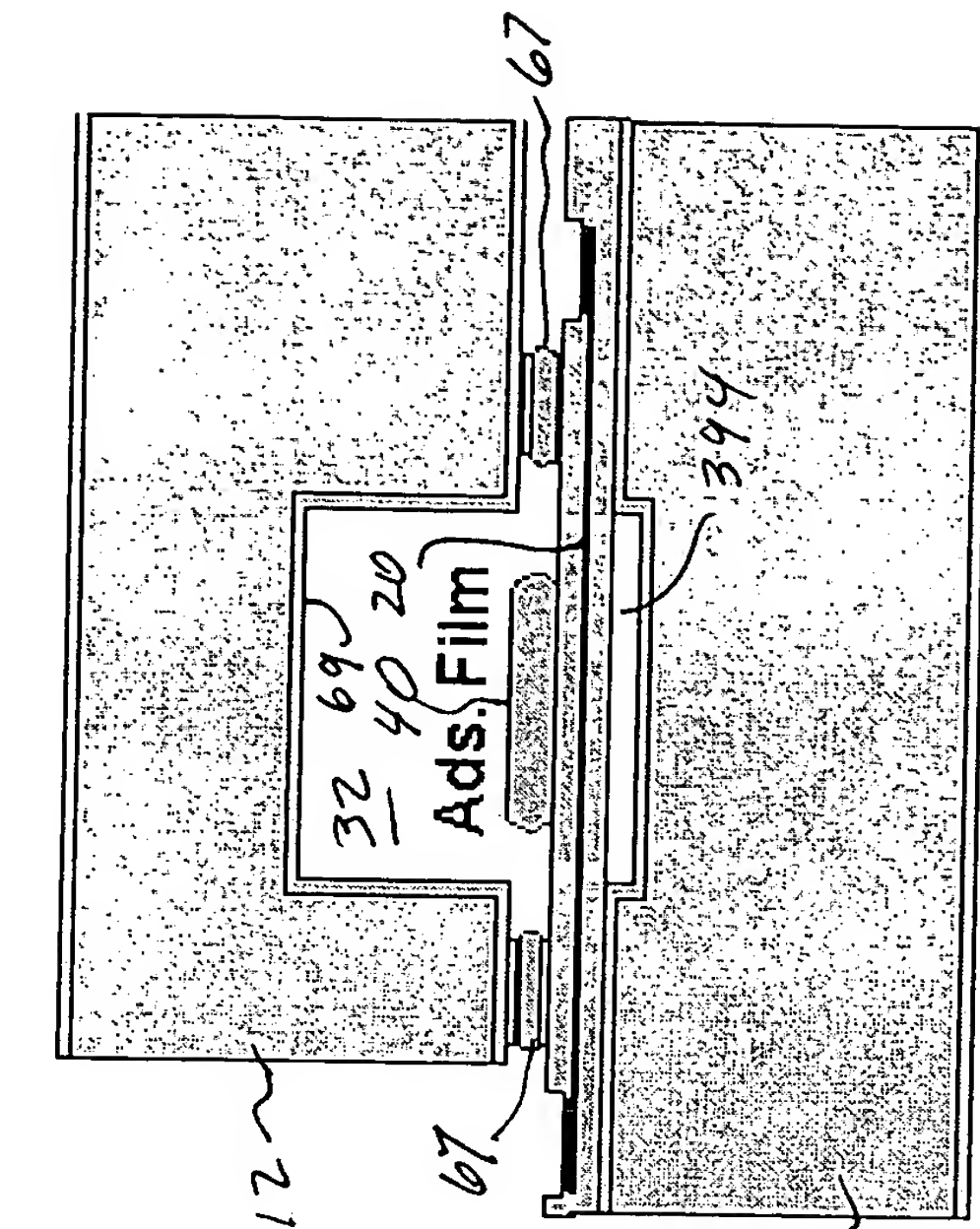


FIGURE 6c

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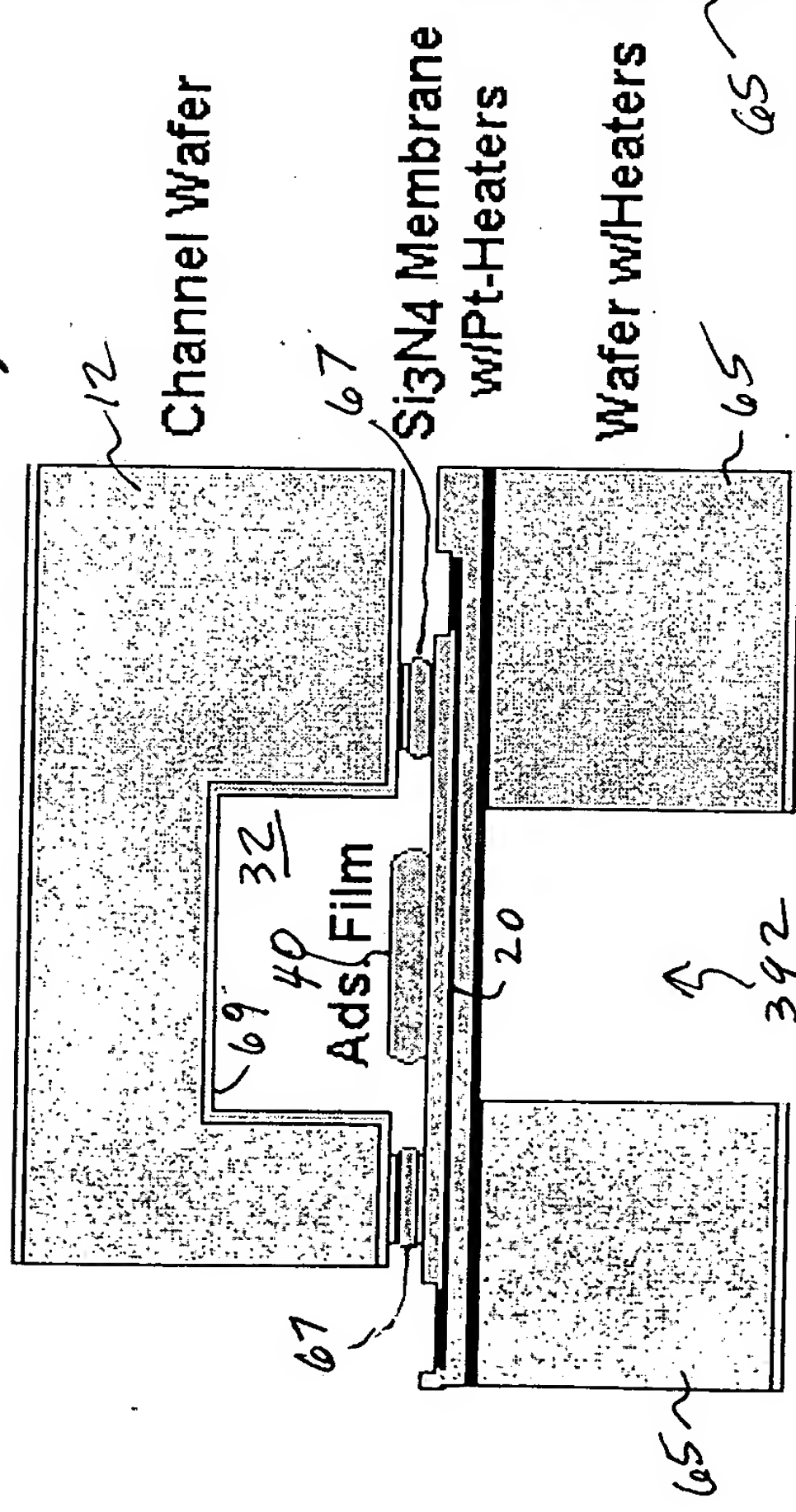


FIGURE 6b

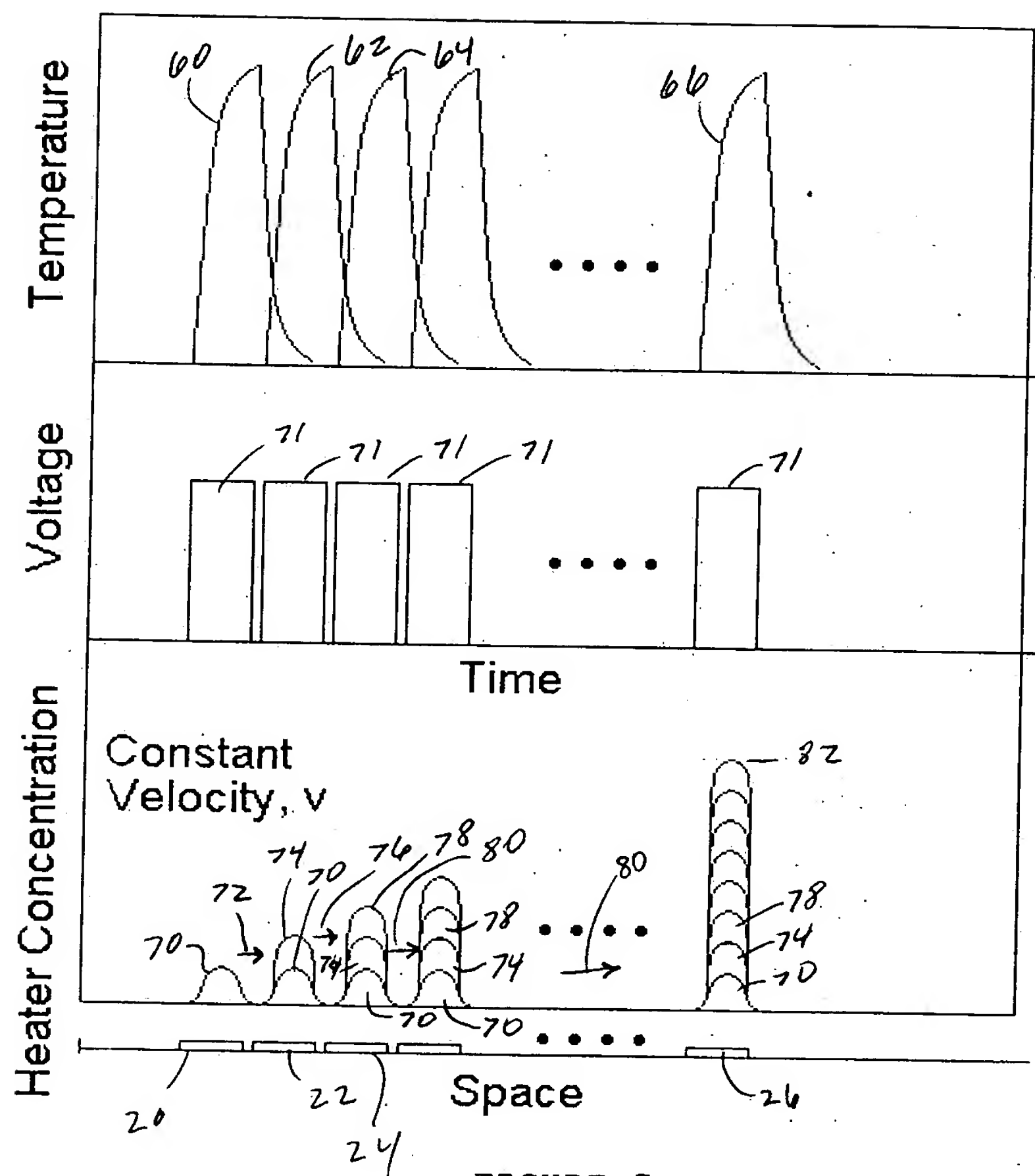


FIGURE 7



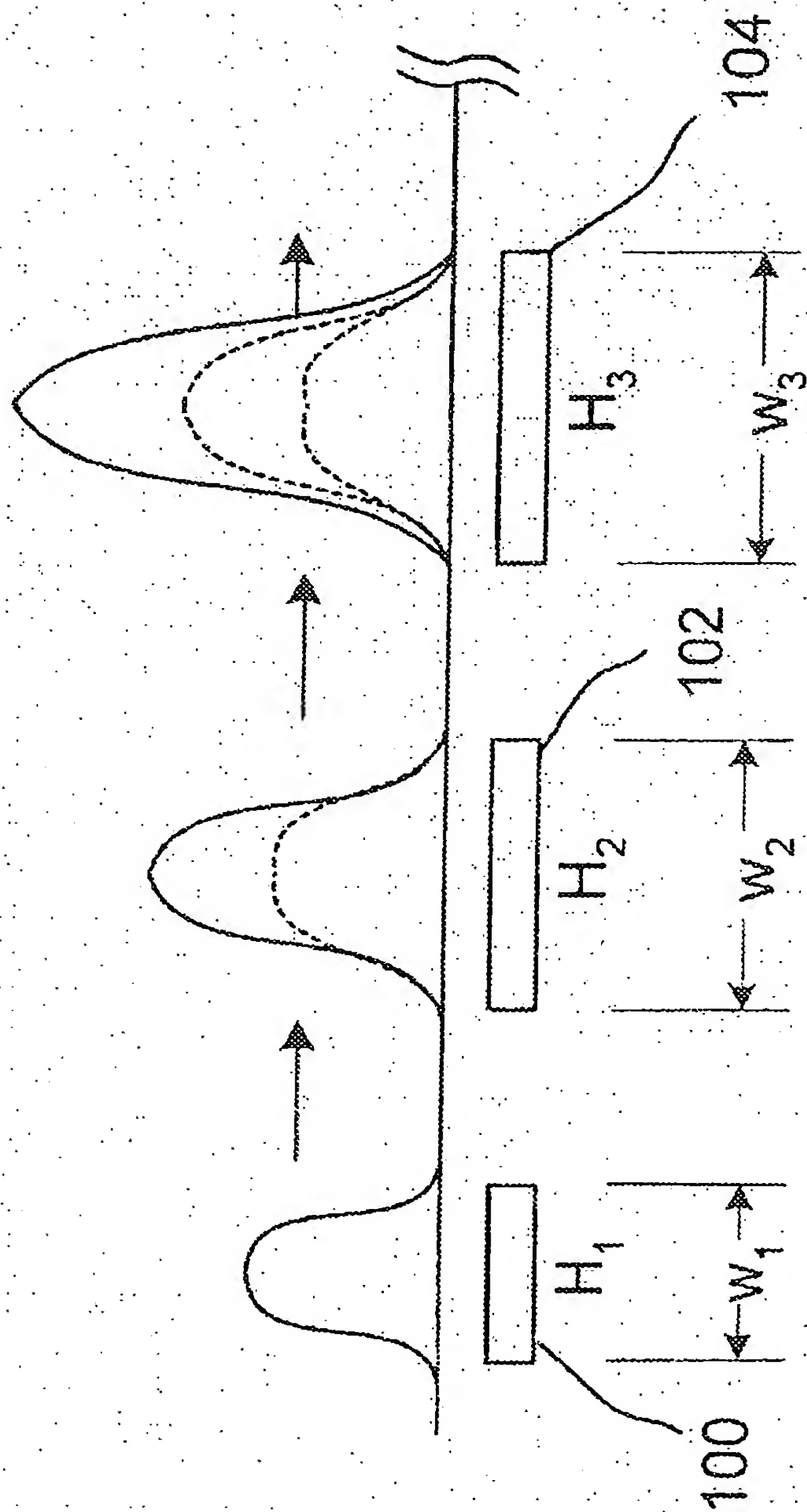


FIGURE 8

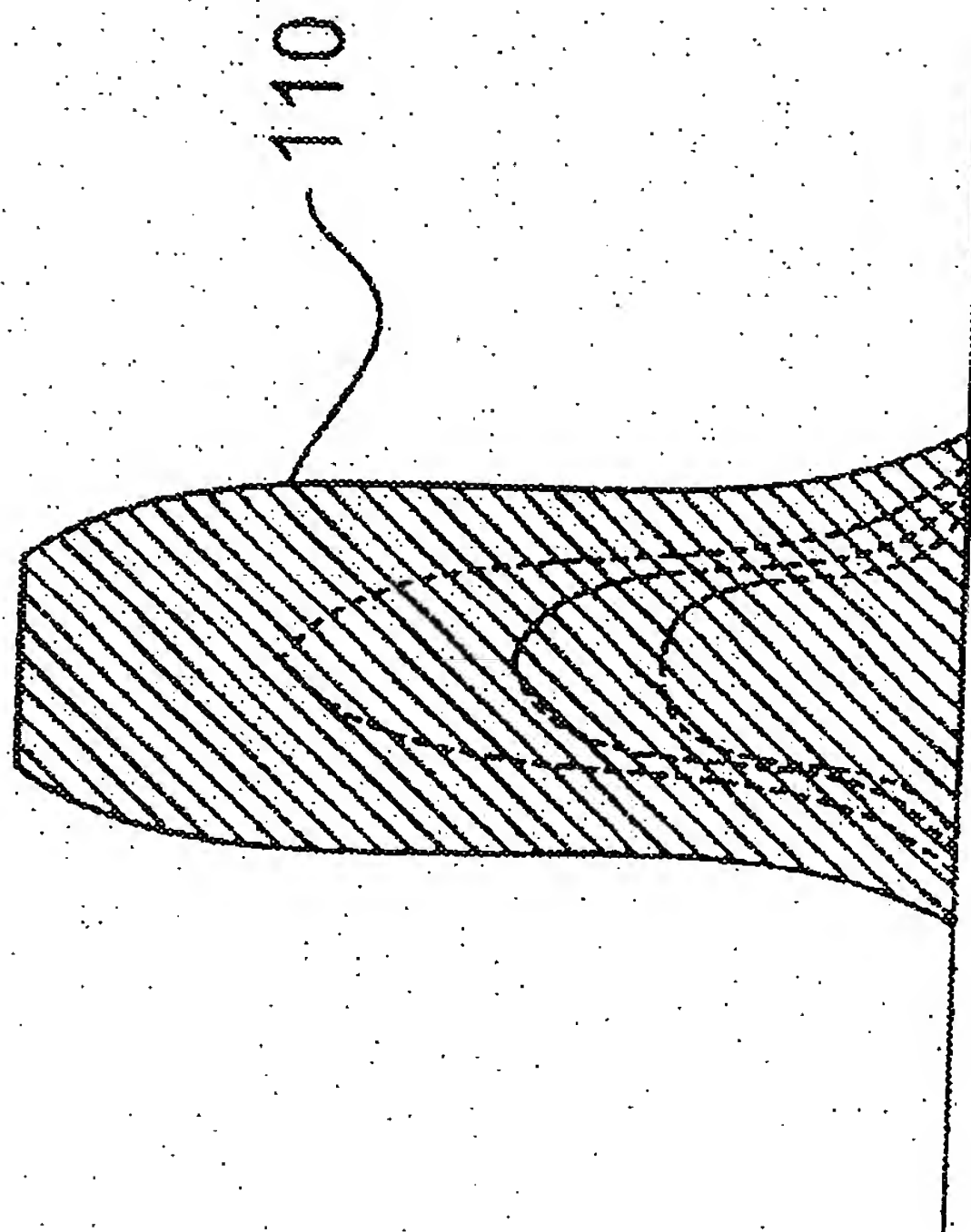


FIGURE 9

Figure 10

Comparison of Detection Limits in  $\mu\text{g/s}$  (MDL) and Selectivities  $\times 10^3$  (SEL)

element	wavelength, nm	this work		ref 9 (without background correction)		ref 9 (with background correction)		ref 7 <sup>a</sup> (echelle)		ref 8 <sup>b</sup> (with background correction)	
		MDL	SEL	MDL	SEL	MDL	SEL	MDL	SEL	MDL	SEL
N	174.2	7.0	6								
S	180.7	1.7	150								
Hg	184.9	0.1	3000								
C	193.1	0.5									
P	177.5	1.5	25								53
C	247.9	2.0									
Si	251.6	7.0	90	2.7							
P	253.6			9.3	1.6			52	3.9		
Hg	253.7		5000	9.3	11			4.2	26		
Br	470.4	0.1		0.6	77			2.0	91		
Br	478.6	75	19	33	0.27	67	1.0	20	1.4	32	0.53
Cl	479.5	39	25	34	0.60						
Cl	481.0			43	0.61	86	1.5			32	1.0
H	486.1	2.2		16				32	2.4		
S	545.4	7.2	26	33	0.08						
D	656.1	2.5	0.6 <sup>c</sup>	7.4	0.19	52	4.6	126	0.25	294	0.07
H	656.3	3.0		7.5							
F	685.6	40	30	20	0.57	180	11.4			37	
O	777.2	76	25					17	3.5	11	0.52

<sup>a</sup>Reference 7 uses peak width at base instead of peak width at half height to determine MDL, and the numbers have been adjusted accordingly for comparison. <sup>b</sup>Reference 8 uses  $1\sigma$  instead of peak to peak  $(6\sigma)$  to measure noise for MDL, and their numbers have been adjusted accordingly for comparison. <sup>c</sup>Versus hydrogen.

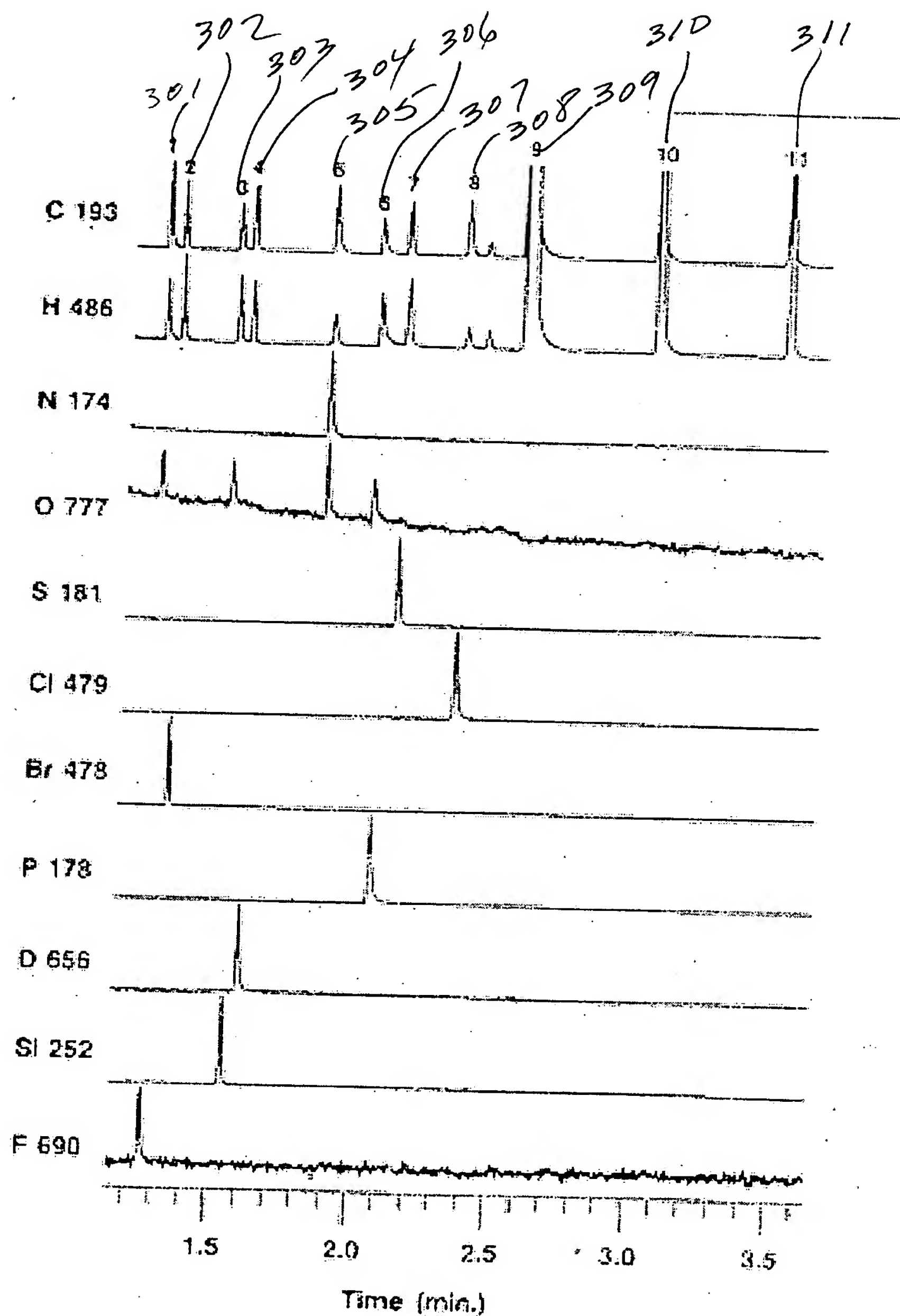


FIGURE 11

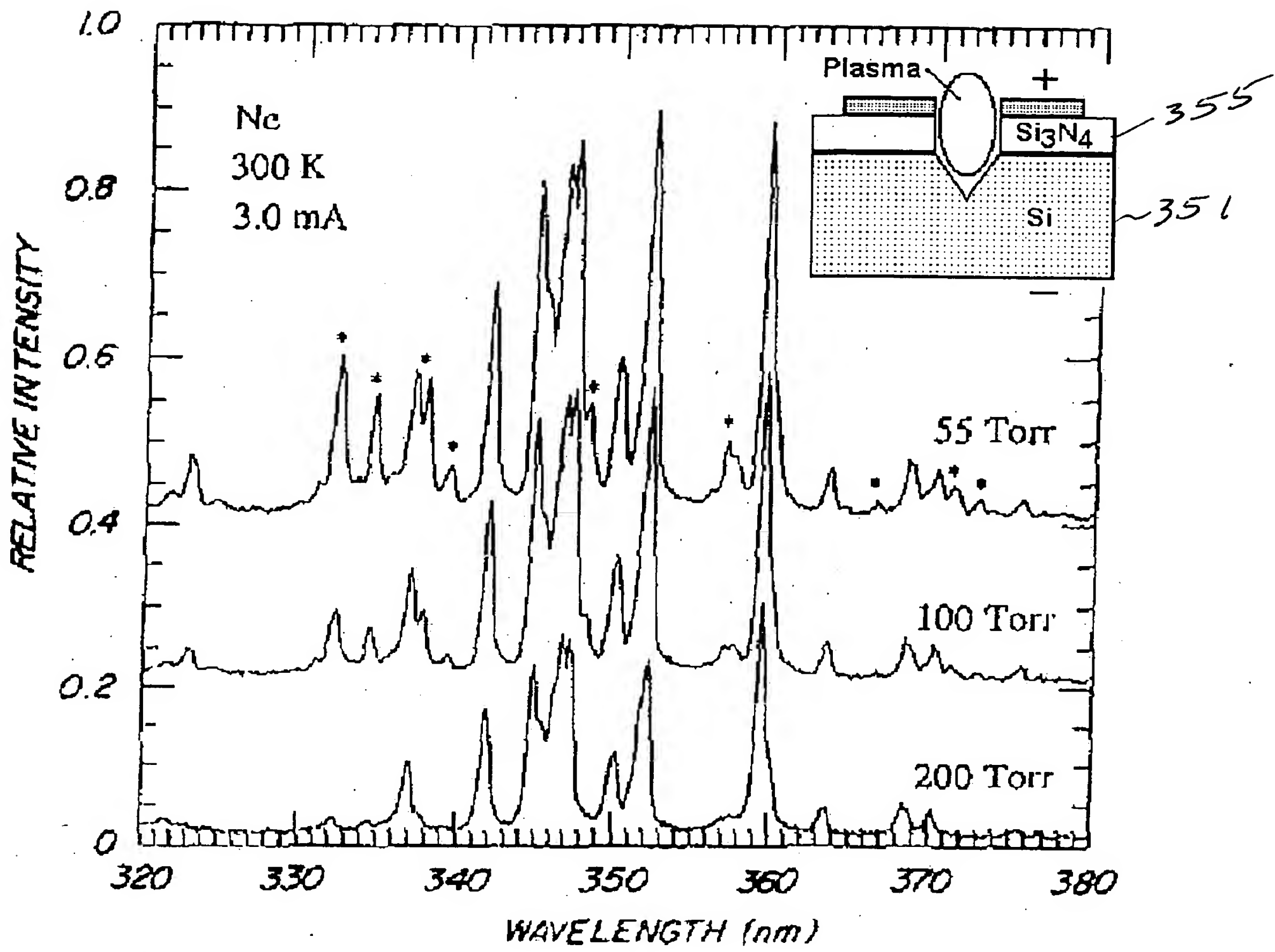


FIGURE 12



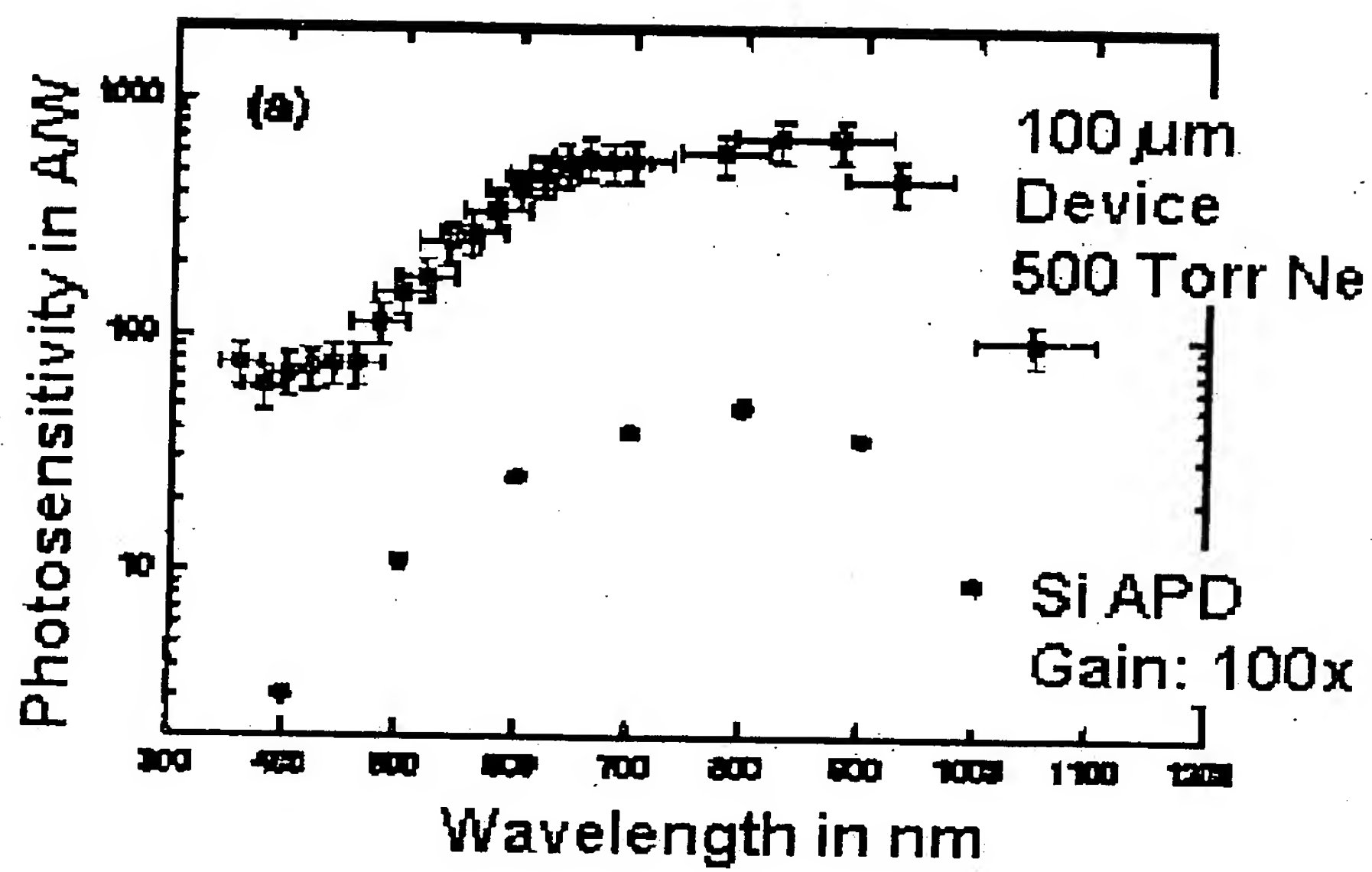
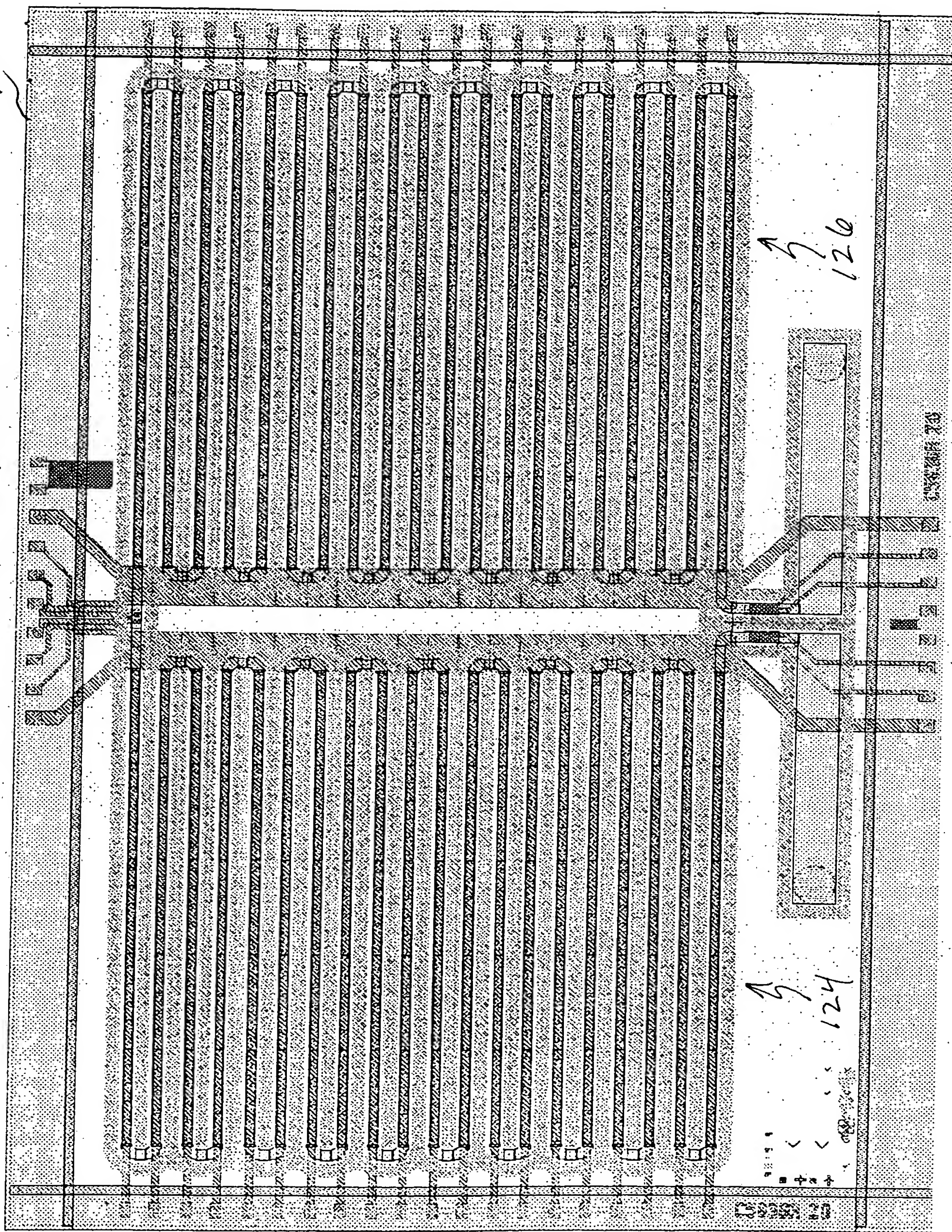


FIGURE 14



Sensors: Flow and Temperature

401



20-Element Pre-Concentrator,

Diff. TC,

20-Element Separator

FIGURE 15



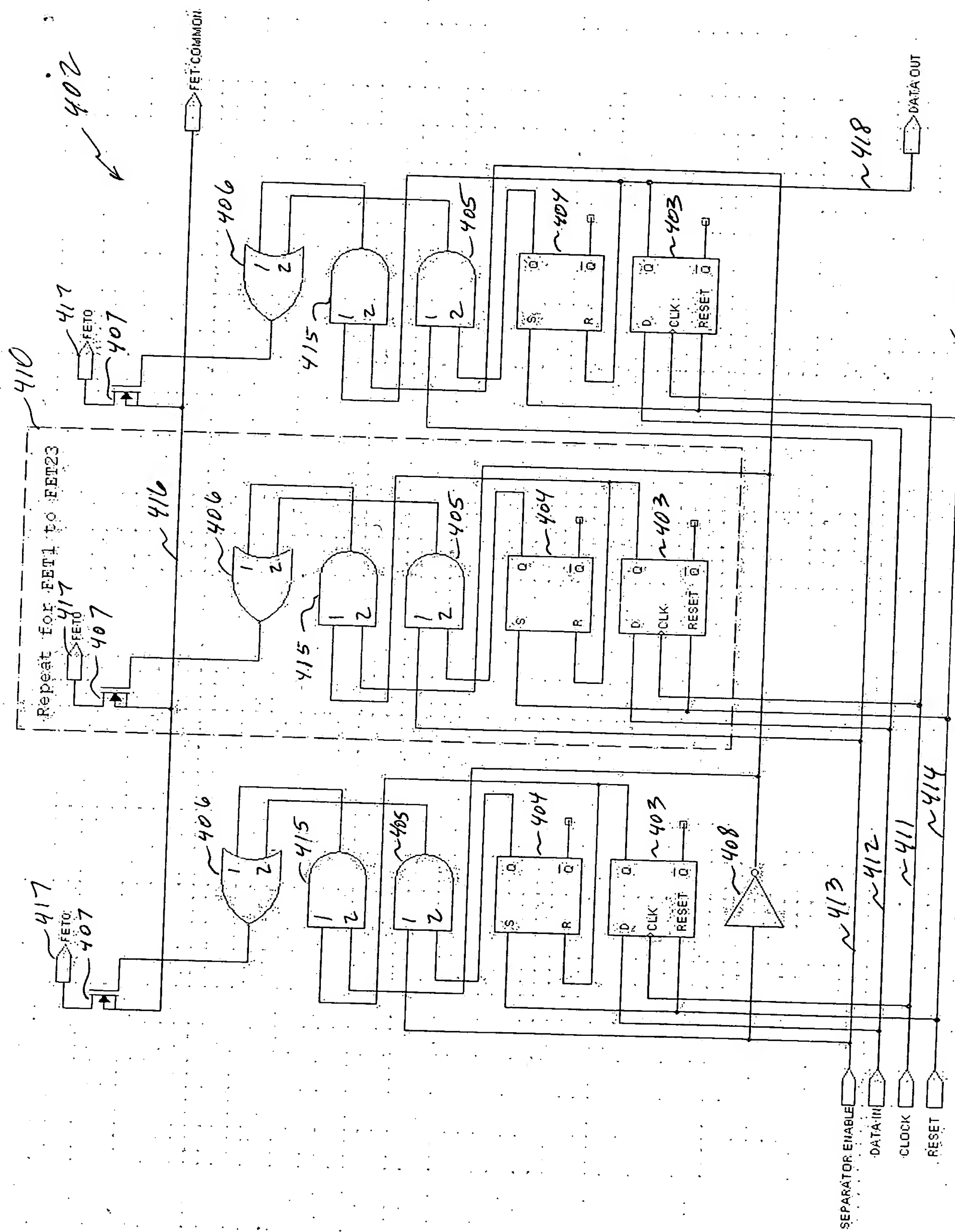


FIGURE 16